INLINE ®

A WORLD OF A/V SOLUTIONS

DISTRIBUTION AMPLIFIERS

IN3264/IN3268
HIGH RESOLUTION, VGA DISTRIBUTION AMPLIFIERS
1-IN, 4-OUT / 1-IN, 8-OUT
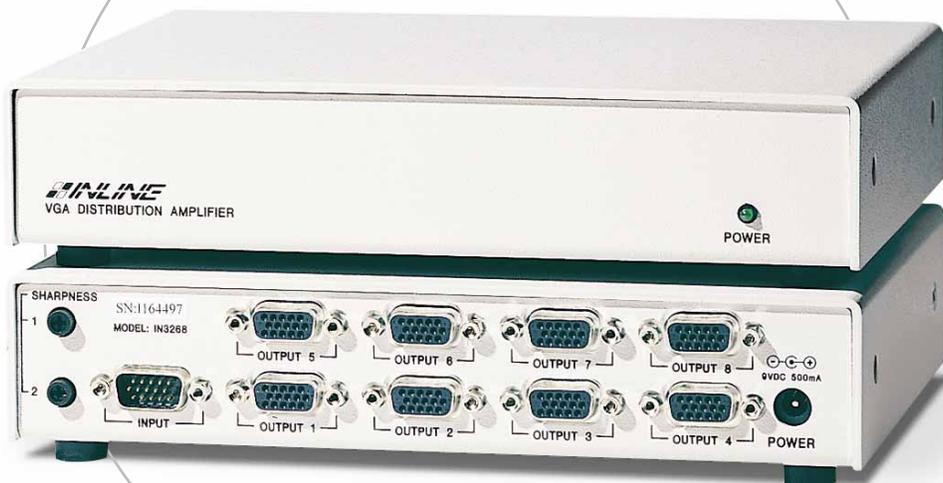
IN3264/68

OPERATION MANUAL

High Resolution Video Products • A/V System Integration Tools • Interactive Training Systems

⚠ Installation and Safety Instructions

For Models without a Power Switch:
> The socket outlet shall be installed near the equipment and shall be accessible.

For all Models:
> No serviceable parts inside the unit. Refer service to a qualified technician.

For Models with Internal or External Fuses:
> For continued protection against fire hazard, replace only with same type and rating of fuse.

⚠ Instructions d'installation et de sécurité

Pour les modèles sans interrupteur de courant:
> La prise de courant d'alimentation sera installé près de l'équipement et sera accessible.

Pour tout les modèles:
> Pas de composants à entretenir à l'intérieur. Confiez toute réparation à un technicien qualifié.

Pour les modèles équipés de fusibles internes ou externes:
> Afin d'éviter tout danger d'incendie, ne remplacer qu'avec le même type et la même valeur de fusible.

⚠ Installations- und Sicherheitshinweise

Für Geräte ohne Netzschalter:
> Die Netzsteckdose soll in der Nähe des Gerätes installiert und frei zugänglich sein.

Für alle Geräte:
> Keine Wartung innerhalb des Gerätes notwendig. Reparaturen nur durch einen Fachmann!

Für Geräte mit interner oder externer Sicherung:
> Für dauernden Schutz gegen Feuergefahr darf die Sicherung nur gegen eine andere gleichen Typs und gleicher Nennleistung ausgewechselt werden.

⚠ Instalacion E Instrucciones de Seguridad

Modelos Sin Interruptor:
> La conexión debe ser instalada cerca del equipo y debe ser accesible.

Para Todos Los Modelos:
> Dentro de la unidad , no hay partes para reparar. Llame un tecnico calificado.

Modelos con Fusibles Internos o Externos:
> Para prevenir un incendio, reemplace solo con el mismo tipo de fusible.

CE COMPLIANCE

All products exported to Europe by Inline, Inc. after January 1, 1997 have been tested and found to comply with EU Council Directive 89/336/EEC. These devices conform to the following standards:

> EN50081-1 (1991), EN55022 (1987)
> EN50082-1 (1992 and 1994), EN60950-92

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) standards governing this device.

CE

FCC COMPLIANCE

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide against harmful interference when equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

Product Overview

The **IN3264 / IN3268** is a high-resolution dedicated VGA distribution amplifier designed to amplify and split the VGA / SVGA / XGA signal from a single computer video card to four or eight data grade displays such as data monitors, LCD projectors, presentation monitors, graphics projectors or other output devices. The **IN3264 / IN3268** features 15-Pin HD connectors for input and outputs, allowing for direct connection to VGA-type video sources and displays using high-resolution coaxial VGA extension cables such as the **IN8000** series.

The units are identical except for the number of outputs and the number of sharpness controls:

The **IN3264** has four buffered outputs and one sharpness control.

The **IN3268** has eight buffered outputs and two sharpness controls.

FEATURES

Universal VGA Signal Compatibility - While the **IN3264 / IN3268** is primarily designed for VGA-type video cards and monitors, this distribution amplifier's six discreet amplification paths make it capable of amplifying analog video signals in a variety of sync formats including RGBHV, RGBS, RGsB, and RGBHVS. The **IN3264 / IN3268** can connect to MAC, SUN, SGI and other high-resolution workstations and monitors by using input and output adapter cables (see list on page 7).

Ultra High-resolution Amplification - Featuring 300 MHz video bandwidth and four or eight buffered outputs, the **IN3264 / IN3268** provides excellent video performance, ensuring maximum image clarity with VGA-type and other analog video signals at virtually any resolution.

Sync Format / Polarity Preservation - Some display devices depend on receiving VGA, MAC, SUN, SGI and other signals in their original sync format with unchanged sync polarity to ensure proper operation. The **IN3264 / IN3268** output signals have the same sync format and polarity as the input signal, ensuring excellent operation with a wide range of compatible CRT, LCD, DMD, and Plasma Data Display devices.

Buffered Outputs - The **IN3264 / IN3268** features four or eight buffered outputs and provides the amplification necessary to extend data displays 100 feet or greater from the source computer when used with high-resolution coaxial cables. Maximum drive distance is dependent on both the input signal resolution and the quality of the output cables. The **IN8000** Series VGA extension cables (available in various lengths from 6' to 100') are specifically designed for this purpose.

A **Sharpness Control** provides effective image enhancement for high-resolution video signals by increasing clarity and edge detail. **Monitor Emulation Dip Switches** located on the bottom of the units engage emulation for a VGA color monitor or MAC 13" / 14" RGB monitor. Two **IN3264** or **IN3268** amplifiers may be rack mounted side-by-side in a 1U rack space using the optional **IN9080** rack shelf.

INPUT / OUTPUT COMPATIBILITY

VGA / SVGA / XGA Compatibility - The unit features 15-pin HD VGA-type connectors for input and outputs. The units will directly connect to VGA video cards and display devices using the **IN8000**

Series of VGA extension cables, available in a variety of lengths from 3' to 100'. Longer lengths are available by custom order.

MAC / SUN / SGI / Workstation Compatibility - While the **IN3264 / IN3268** is primarily designed for VGA-type video cards and monitors, this distribution amplifier actually has 6 discrete amplification paths and is capable of amplifying analog video signals in a variety of sync formats including RGBHV, RGBS, RGsB, and RGBHVS. The **IN3264 / IN3268** can connect to MAC, SUN, SGI and other high-resolution workstations and monitors by using input and output adapter cables (see list on page 7).

KEY CONCEPT
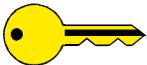
> *VGA, SVGA, XGA, SUN, SGI and other workstation video cards operate in several different modes encompassing a wide range of resolutions and horizontal and vertical scan rates. The IN3264 / IN3268 is <u>not</u> a scan converter and the display devices attached to the outputs must be compatible with the resolution, horizontal scan rate and vertical refresh rate output of computer video card. Please check the documentation for both the computer video card and the data projection device in order to ensure compatibility.*

Installation

This section offers step-by-step instructions for installing the **IN3264 / IN3268.**

1. Turn the computer and computer monitor off. Disconnect the computer monitor (if present) from the video output port on the computer.

2. Connect an input cable between the computer video port and the **IN3264 / IN3268** input using the appropriate cable as indicated in the chart on Page 7.

3. Connect the local computer monitor (if present) to Output #1 on the **IN3264 / IN3268** distribution amplifier. VGA local monitors can be connected directly to the output. Other types of local monitors are connected using the appropriate adapter / extension output as indicated in the chart on Page 7. If no local monitor is connected to Output #1, you can emulate a VGA color monitor / MAC 13" RGB monitor using the dip switch located on the bottom of the unit.

4. Connect output devices (monitors, data projectors, etc.) to the other **IN3264 / IN3268** output connectors. Devices may be connected directly to the outputs, or you may use the appropriate adapter / extension output cables as indicated in the chart on Page 7. For best results, high-resolution coaxial cables are recommended for all output connections. *Note: All unused outputs are self-terminating and do not require a termination plug.*

5. Connect the round connector on the power supply to the POWER input jack (located on the back panel of the distribution amp, immediately adjacent to Output 4.) Connect the power adapter box side of the power supply to the A/C power source.

6. Complete the installation by turning on the computer, local monitor and remote data monitors.

Default Settings

   Among the many features of the **IN3264** and **IN3268** Distribution Amplifiers is the ability to not only have 1 x 4 or 1 x 8 configurations (respectively), but, by unterminating the input impedance, users can add a loop-out to other DAs as well. This effectively converts the **IN3264** into a 1 x 5 DA, and the **IN3268** into a 1 x 9.

   The **IN3264** is equipped with three sets of jumper pins per color (three for red, three for blue and three for green) for a total of 9 individual jumpers (see Diagram 1-1). Each one has a specific purpose. The factory default setup has all jumper pins closed except for J9, J11 and J13. These jumper pins are there to be used in the event that another board is added, converting the DA into a 1 x 8, resulting in the **IN3268**. **These pins should remain open at all times.**

DIAGRAM 1-1   **IN3264 BOARD DEFAULT**

LED   COIL

J8 →   ■ ■   ← J2
           ▭ ← J9

J10 →   ■ ■   ← J3
            ▭ ← J11

J12 →   ■ ■   ← J4
            ▭ ← J13

H-POT
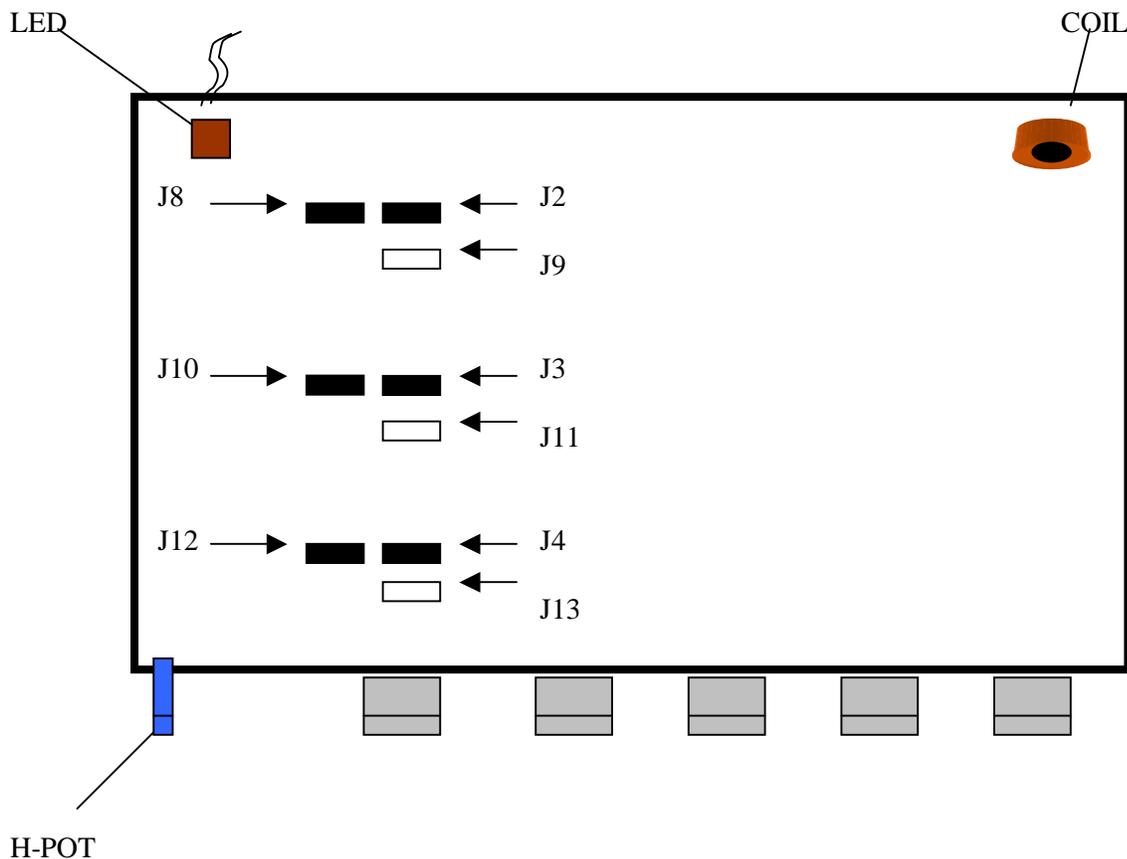
Opening the J2, J3 and J4 pins will remove the 75 ohm termination for each color. This setting allows users to connect a cable such as the **IN9041** to the input and utilize a local monitor. Please note that if there is no local monitor and the jumper pins are set to this position, there will be unnecessary "blooming" or overdriving of the other four outputs.

The input jumper pins (J8, J10 and J12) **must be closed at all times**. If any of these jumpers are open there will be no output because the pins are directly connected to the 15-pin input connectors (jumper pins J8, J10 and J12 are used to interface the top and bottom boards of the **IN3268** and should not be adjusted). The factory default setting has them all closed. This allows the signal to be processed into the DA and result in the proper 1 x 4 operation.

The **IN3268** is very similar in operation and configuration to the **IN3264**. This unit has the same type of board for the other four outputs, but the jumper pins on the top and the bottom boards of the **IN3268** have different configurations.

The bottom board should have all of the jumper pins closed except J2, J3 and J4, which remove the termination and allow the top board to disengage the input. To place the proper 75 ohm termination to the input, J2, J3 and J4 on the top board must be closed as well. The configuration of the top board is a little different because there are only two sets of jumpers per color (see Diagram 2-1).

DIAGRAM 2-1   **IN3268 TOP BOARD DEFAULT**

LED   COIL

J2
J9

J3
J11

J4
J13

H-POT
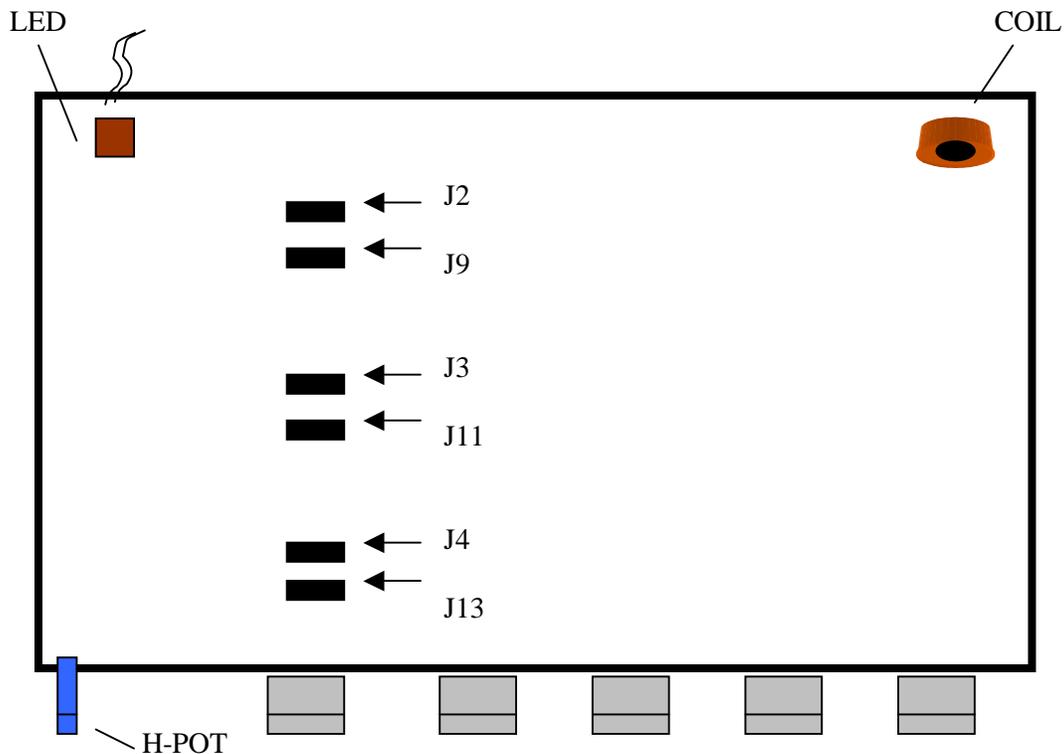
IN3268 BOTTOM BOARD DEFAULT

LED   COIL

J8 →   ← J2

                             ← J9

J10 →   ← J3

                             ← J11

J12 →   ← J4

                             ← J13
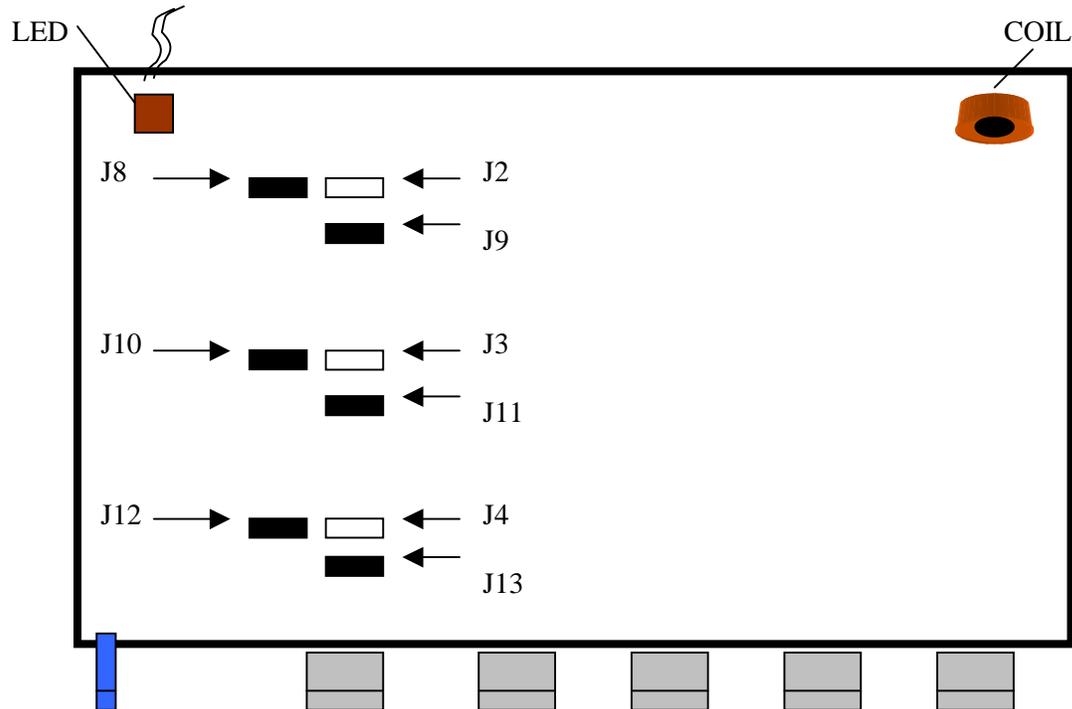
To allow a loop-output, the J2, J3 and J4 pins must be open on both the top and the bottom boards. Again, the outputs will be overdriven if there is no local monitor connected to the input when the termination is disabled. This may cause serious problems to the display device.

KEY CONCEPT
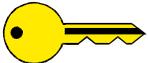
> *Warning: Jumpers should only be adjusted by qualified technicians! An improper setting may lead to incorrect operation and could even result in severe damage to the computer video port or the monitor.*

Specifications

	IN3264 VGA Distribution Amplifier	IN3268 VGA Distribution Amplifier
Input		
Connector Type	(1) 15-pin HD male connector	(1) 15-pin HD male connector
RGB Signals	Analog video 1.5V p-p max. 75 ohm impedance	Analog video 1.5V p-p max. 75 ohm impedance
Sync Signals	TTL	TTL
Compatible Formats	RGBHV, RGBS, RGsB, RGBHVS	RGBHV, RGBS, RGsB, RGBHVS
Horizontal Sync Range	15 to 130 KHz	15 to 130 KHz
Vertical Sync Range	30 to 120 Hz	30 to 120 Hz
Outputs		
Connector Type	(4) 15-pin HD female connector	(8) 15-pin HD female connector
RGB Signals	Analog video	Analog video
Gain	1.0 (unity)	1.0 (unity)
Bandwidth	>300 MHz @ -3dB with .7 volt input signal	
Sync Signals	TTL sync, both units pass sync in the same format as the input signal with sync polarities preserved	
Internal Jumpers	Internal jumpers set to input termination: Jumpers closed (default): 75 ohm termination Jumpers open - High Z	
Dimensions		
Size	Height: 1.65" / 4.2 cm Width: 8.5" / 21.6 cm Depth: 6" / 15.2 cm	
Shipping Weight	4 lbs. / 2 kg.	

Power		
	IN9205: 9VDC; 1A	**IN9213**: 9VDC; 1.5 A 120VAC / 60 Hz **IN9222**: 9VDC; 1.5 A 100-250 VAC; 47-63 Hz

Regulatory Compliance	
Safety / EMI	UL 1950, 3rd Ed.; CE: EN60950-92 CAN/CSA-22.2 No. 950 3rd Ed. FCC class A: CE: EN50081-1 EN55022, EN55082-1

Parts & Accessories Included		
	IN9205 - 9VDC; 1A Power Supply Operation Manual	**IN9213** - 9VDC; 1.5A Power Supply *or* **IN9222** - 9VDC; 1.5A Universal Power supply Operation Manual

Optional Accessories	
Power Accessories	**IN9210** Rack Mountable Power Supply - Provides power for up to five 9VDC / 12VDC devices **IN8500** Bulk Power Cable for **IN9210**: 18 gauge, 2-conductor power cable, bulk **IN8512P** Connects **IN9210** to **IN3264 / IN3268** - (1) 2-pin Phoenix connector & (1) round power connector, 12" long
Rack Mounting Equipment	**IN9080** Rack Shelf - Mounts two units side-by-side in a 1U rack space **IN9088** Blank Panel - Fills space on Rack Shelf when using only one **IN3264 / IN3268**

INPUT / OUTPUT ADAPTER AND EXTENSION CABLES

		VGA	MAC	SUN (13W3 - RGBS)	SGI (13W3 RGsB)	5-BNC (RGBHV/RGBS/RGsB)
Input Cables	**6' Long**	IN8006	IN9140	IN9142	IN9148	IN9048
	12' Long	IN8012				IN9046
	25' Long	IN8025	IN9144	IN9146	IN9150	IN9046-L25
	50' to 250'	IN8000 Series				IN9046-Lxx
Output Cables	**3' Long**	N/A	IN9141	IN9143	IN9149	
	6' Long	IN8006				IN9047
	12' Long	IN8012				IN9045
	25' Long	IN8025	IN9145	IN9147	IN9156	IN9045-L25
	50' to 250'	IN8000 Series				IN9045-Lxx

To provide maximum flexibility, the input and output cables listed above can be used as adapter and extension cables with a variety of INLINE products as indicated below:

Distribution Amplifiers:
    IN3262D / IN3262DS / IN3264 / IN3268 – Used as Input / Output Cables

Video Interfaces:
    IN2100 / IN2110 / IN2111 / IN2111F / IN2112 / IN2114 / IN2200 – Used as Input / Output Monitor Cables. Please note that the **IN9046 / IN9045** 5-BNC input cables may only be used for RGBHV input signals with these interfaces. RGBS signals require an **IN9100 cable.**

ADDITIONAL VGA STEREO AND AUDIO DISTRIBUTION AMPLIFIER MODELS

  IN3262D - 1 x 2 High-resolution VGA amplifier with detachable input cable
IN3262DS - 1 x 2 High-resolution VGA and stereo audio distribution amplifier with detachable input cable
    IN3262 - 1 x 2 High-resolution VGA distribution amplifier with attached 6' input cable
  IN3262S - 1 x 2 High-resolution VGA stereo and audio distribution amplifier with attached 6' input cable
    IN3248 - 1 x 8 Stereo audio distribution amplifier for unbalanced or balanced signals - Phoenix connectors
  IN3248R - 1 x 8 Stereo audio distribution amplifier for unbalanced signals - RCA connectors

Troubleshooting

The display device connected to the IN3264 / IN3268 output has a bad / scrambled image.

Solution 1: The display device connected to the output of the distribution amplifier may not be compatible with the computer output. ***Many older LCD and Data Display units will not present signals at resolutions higher than 640 x 480 or 800 x 600, or horizontal scan rates above 36 KHz or 48KHz.*** Make sure you know what resolution mode the computer video card is set to output. While basic 640 x 480 VGA at 60 Hz refresh rate runs at 31.5 KHz, SVGA modes can be as high as 48 - 58 KHz with the highest resolution settings such as 1600 x 1200 running at 80 KHz or higher depending on the refresh rate setting. Sun and SGI computers usually operate at 61KHz, 64KHz, or 71KHz at resolutions as high as 1280 x 1024.

Solution 2: The output cable may have a bad sync line. Try another cable.

The output image is missing a color.

Solution: The output cable may be bad. Check both ends of the cord to see if any of the pins are bent or missing. Also inspect the cable to see if the coax may have been pinched or severed internally. Try another cable.

The output image of the IN3264 / IN3268 is visible but has poor quality / low definition.

Solution: The output cables may be too long or of poor quality. INLINE offers several high-resolution mini-coax cables for analog signals and a series of shielded twisted pair cables designed specifically for digital video signal transmission. See page 7 for specific recommendations.

The unit doesn't output any signal and the power light is not turning on.

Solution: The power adapter may have failed. It should feel warm to the touch after it has been plugged in for a few minutes. If the adapter feels cool, replace it.

Warranty

- INLINE warrants the equipment it manufactures to be free from defects in materials and workmanship.

- If equipment fails because of such defects and INLINE is notified within two (2) years from the date of shipment, INLINE will, at its option, repair or replace the equipment at its plant, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications.

- Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of re-shipment to the Buyer.

- **This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.**

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